

A NEW GENERATION OF MANGOS FOR FLORIDA

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Abstract. The mango has been an important commercial crop in South Florida, USA for more than a century. However; as the face of agriculture has changed in Florida, the challenges and opportunities for the mango within the state have evolved. Estate agriculture and patio gardening are rapidly expanding market opportunities for tropical fruit in Florida. These horticultural activities have distinct advantages due to the separation from direct foreign competition and land use pressures. A unique horticultural approach is needed in order to adapt the mango to estate and patio garden production. Over the last decade at Fairchild Tropical Botanic Garden there has been a concentrated effort into the selection, propagation, study and promotion of mango cultivars uniquely suited for this market. A suite of mango cultivars, including 'Cogshall', 'Fairchild', 'Ice Cream', 'Graham', 'Mallika', 'Manilita', 'Neelum', and 'Rosi-gold' have been promoted to provide the estate and patio grower with highly manageable, quality alternatives to traditional commercial Florida cultivars. The search continues for additional cultivars offering greater manageability, a smaller tree size, and superior quality and horticultural traits.

The mango has over a century of history in Florida, and it was in South Florida that David Fairchild of the United States Dept. of Agriculture initiated an ambitious program for the introduction, evaluation and selection of mango cultivars from around the world. In cooperation with local universities, industry groups and private individuals, the introduction, evaluation and breeding of the mango went forward in earnest for decades in South Florida. The result was the emergence of a new center of diversity for the mango and the development of the "Florida mango"—a robust group of cultivars uniquely suited for export and modern marketing. Florida mangos, specifically the 'Tommy Atkins', 'Haden', 'Keitt' and 'Kent', had superior characteristics of production, disease resistance, handling and shipping, and external appearance. These Florida mangos now account for the majority of mangos in the Western Hemisphere grown for export to the United States, and increasingly these highly adaptable cultivars are impacting mango production in Africa, Asia and the subtropics.

The Florida mango industry was based principally on this handful of cultivars. Orchard production of mango reached a peak in acreage and production in the early 1980s. Imports from Mexico and Tropical America, urbanization, trade agreements, and land use legislation have decreased mango orchard acreage to its current level of less than 1000 acres. However, local interest in the mango and its culture has remained strong. Fairchild Tropical Botanic Garden began to promote the mango, its art and culture over a decade ago, with the collection and planting of a large, diverse genetic collection and the hosting of an annual international festival devoted to the mango. Integral to this event was the initiation of the Curator's Choice Program for the selection, promotion

and release of new mango cultivars to serve the expanding market of estate and patio production (Fig. 1).

The objective of the current paper is to describe the suite of mango cultivars selected and promoted through the programs at Fairchild Tropical Botanic Garden for use in estate agriculture in Florida.

Initiation and Evolution of the Curator's Choice Program

In 1993, Fairchild Tropical Botanical Garden (FTBG) hosted its first International Mango Festival. Integral to this modest effort into the generic promotion of the mango was the initiation of the Curator's Choice Program. Cultivars were selected for their superior fruit quality and horticultural traits, and were endorsed by FTBG. Each cultivar was selected to provide estate and patio producers with ample harvests of quality fruit with a minimum of chemical, physical and time investments.

A concerted selection and research effort was directed towards cultivars with a dwarf or semi-dwarf tree habit. Such cultivars were more space efficient and provided distinct advantages

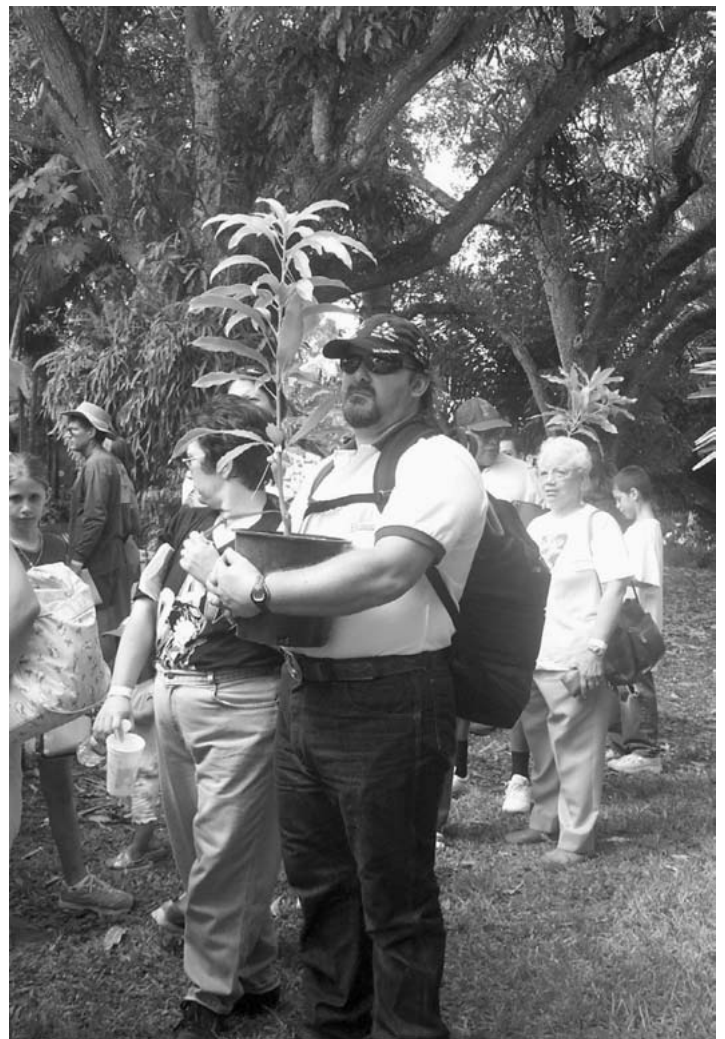


Fig. 1. Satisfied customer at the FTBG International Mango Festival.

for horticultural care and management. Termed “condo mangos” by the Marketing Department of FTBG, these mango cultivars were touted for use in modest spaces, or even for permanent maintenance in large containers. The “condo mango” concept had a rapid and far-reaching impact on the program at FTBG and opened a new market for the mango in Florida.

Patio growers now had an alternative to the single ‘Haden’ tree that occupied their entire available growing space. Apartment and condominium dwellers, most of which had never dreamed of growing a mango tree, seized upon the opportunity to grow mangos in containers. Residents of colder regions of Florida and elsewhere also saw the opportunity. The small trees could be more easily protected from the cold, allowing for significant expansion of the mango’s range in Florida. The local nursery industry began to capitalize on the growing clientele and demand for the mango, and the sale of these cultivars contributed to the growing overall sales of mango trees over the last 10 years.

Cultivars

The key to the Curator’s Choice Program was a suite of mango cultivars that could provide the estate gardener with a superior product in terms of horticulture, eating quality or aesthetics. The following descriptions summarize the cultivars promoted through the program to date.

‘**Cogshall**’ was selected on Pine Island, Fla. in the 1940s, recognized for its small tree size, heavy production, eating quality and beauty. The fruit average about 1 lb with an eye-catching yellowish-orange, overlaid with a brilliant crimson blush. The soft, completely fiberless flesh has an excellent rich, spicy and aromatic flavor that is sure to please. The fruit and tree have good disease tolerance. The fruit ripen a few each day, over an extended season from mid June through July. The ‘Cogshall’ tree remains small and compact and with minimal pruning can be maintained at a height and spread of 6 ft or less.

‘**Fairchild**’ was selected in the early 1900s within the Panama Canal Zone. It became a local favorite in Panama due to its distinctive flavor and heavy production under humid conditions. The small, oblong fruit average 8.5 oz and are lemon yellow at maturity in June and July. The flesh is deep orange and fiberless with a juicy, rich, aromatic and spicy flavor. The tree and fruit are highly tolerant of disease, fruiting well under humid conditions, making it a natural for South Florida. The tree is compact and can be maintained at a height and spread of 8 ft or less.

‘**Graham**’ is a descendent of ‘Julie’ selected in Trinidad. The fruit are oval, averaging 1¼ lb. The fruit ripen from mid-July to August to a bright yellow, with a slight pink blush. The thick, tough skin conceals a fiberless, deep orange, soft and juicy flesh with a sweet, rich and aromatic flavor. During the late summer, a finer-flavored mango cannot be found. ‘Graham’ grows well in moist, humid conditions, typical of South Florida. Fruiting is best with cross-pollination. The tree is compact, and with annual pruning can be maintained with a size and spread of 8 ft.

‘**Ice Cream**’ is from Trinidad and Tobago. It is small and flattened, weighing 8 oz, with a greenish-yellow color when ready to eat. The skin is thick; yet, tender and easily separating from the fiberless, yellow, melting and juicy flesh. The flavor boasts a sweet richness reminiscent of mango sorbet. The fruiting season stretches over a month from June to July. It is perfect for those with limited space or interest in container

growing—easily managed to a height and spread of 6.5 ft. The tree and bloom are susceptible to powdery mildew and anthracnose, but moderate harvests are routine with attention to cultural practices. The trees fruit best with cross-pollination.

‘**Mallika**’ is among the finest of Indian dessert mangos. The canary-yellow fruit average about 1 lb and have a fiberless, firm, deep orange flesh and a rich, highly aromatic flavor with hints of citrus and melon. The fruiting season is from late June to July. ‘Mallika’ always receives accolades among chefs and participants in the Fairchild International Mango Festival. However, to achieve the intensely sweet, honey-like flavor the fruit should be harvested before they ripen on the tree and stored at room temperature for 2 to 3 weeks. The fruit must not be cooled prior to ripening. The tree is compact and moderately vigorous, and with proper care and pruning can be maintained productive at a height and spread of 8 to 10 ft.

‘**Manilita**’ is from the Pacific Coast of Mexico. The fruit are small and elongated, weighing 9 oz. The color is an eye-catching pastel red, which covers all but the nose of the fruit. The flesh is light yellow and silky-smooth, with a pleasing sweet and uncomplicated flavor. It is among the earliest red mangos to ripen in Florida. The tree is dwarf and disease resistant and is perfectly suited for container or patio production. Tree size can be maintained at 6.5 ft or less in height and 5.5 ft in spread. Production is consistent, but modest and thinning of the fruit is generally not necessary.

‘**Neelum**’ is an exceptional-quality South Indian dessert mango. The fruit weigh 9 oz and in warm, humid climates they ripen to a bright yellow. The flesh is deep orange, with a rich, aromatic flavor. When properly ripened at a temperature of 78°F, the rich sweetness of the flesh is accompanied by aromatic melon and citrus overtones. The flesh is firm, and suited for slicing and fruit salads. The fruiting season is among the latest of all cultivars in Florida, routinely ripening in October. Fruit thinning is important for proper fruit size—only a single fruit should develop per panicle. The tree is dwarf and suited for container and patio production. It can be maintained at 7 ft or less in height and spread.

‘**Rosigold**’ is a South Florida selection, and is the answer to those who cannot wait for the mango season to arrive—the fruit ripen from middle to late March in Florida. The fruit are cylindrical, weighing 11 oz and are a bright yellow, with crimson and red highlights on the sun-exposed shoulders. The skin is thick, tender and adhesive to the soft, melting and juicy deep-orange flesh. The flavor is rich, aromatic and sweet, with a hint of the Asian Tropics. There is no fiber in the silky flesh. The tree is small, manageable and highly productive and can be kept at 7 ft height. The bloom is moderately susceptible to anthracnose, but fruiting is consistent. Fruit thinning is recommended to improve fruit size and quality.

Conclusions

This new generation of mangos serves the emerging need in Florida for estate and patio gardening. Throughout Florida there are niche markets for the mango that demand novel approaches and increased quality, both in the home landscape and the local retail market. Imported fruit with a limited cultivar selection, and often sub-optimal eating quality cannot serve these markets. The search for cultivars with improved adaptability, disease resistance, and quality continues. The potential for expansion of this market is bright, given the selection of superior cultivars.